



IFW

Docket No.: 50212-581

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of : Customer Number: 20277  
Toshiaki OKUNO, et al. : Confirmation Number: 6746  
Application No.: 10/804,174 : Group Art Unit: 2874  
Filed: March 19, 2004 : Examiner: Not yet assigned  
For: WAVELENGTH CONVERTER

**INFORMATION DISCLOSURE STATEMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached form PTO-1449. It is respectfully requested that the references be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed within three months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

The relevance of HIROSHI, J. et al., "Dispersion slope controlled HNL-DSF with high  $\gamma$  of  $25 \text{ W}^{-1}\text{km}^{-1}$  and band conversion experiment using this fiber" Fitel Photonics laboratory, ECOC2002, Post-deadline session 1; OKUNO, T. et al., "Generation of Ultra-Broad-Band Supercontinuum by Dispersion-Flattened and Decreasing Fiber" IEEE Phototonics Technology

Supercontinuum by Dispersion-Flattened and Decreasing Fiber" IEEE Phototonics Technology Letters, Vol. 10, No. 1, January 1998; HANSEN, K.P. et al., "Fully Dispersion Controlled Triangular-Core Nonlinear Photonic Crystal Fiber" OFC2003, March 23-28, 2003, Postdeadline Papers; LEE, J.H. et al., "Four-Wave Mixing Based 10-Gb/s Tunable Wavelength Conversion Using a Holey Fiber With a High SBS Threshold" IEEE Phototonics Technology Letters, Vol. 15, No. 3, March 2003; INOUE, K. "Arrangement of fiber pieces for a wide wavelength conversion range by fiber four-wave mixing" August 15, 1994 / Vol. 19, No. 16 / Optics Letters; ONISHI, M. et al., "Highly Nonlinear Dispersion-Shifted Fibers and Their Application to Broadband Wavelength Converter" Optical Fiber Technology, 4, 204-214 (1998), Article No. OF980248; INOUE, K. "Tunable and Selective Wavelength Conversion Using Fiber Four-Wave Mixing with Two Pump Lights" IEEE Phototonics Technology Letters, Vol. 6, No. 12, December 1994 is discussed in the present specification.

EP 1 209 497 A, 5,960,146 A, 4,852,968 A, OKUNO T. et al., "Silica-Based Functional Fibers with Enhanced Nonlinearity and Their Applications" *IEEE Journal of Selected Topics in Quantum Electronics* Vol. 5, No. 5, September/October 1999, BATAGELJ B. et al., "Conversion Efficiency of Fiber Wavelength Converter Based on Degenerate FWM" Transparent Optical Networks, 2nd Internation Conference on Gdansk, Poland, June 5, 2000, and HEADLY, C. et al., "Methods of Suppressing Stimulated Brillouin Scattering in Optical Fibers by Manipulation of the Fiber Properties", *Technical Digest Symposium on Optical Fiber Measurements*, October 1, 1996, pp 105-110 were first cited in a corresponding foreign application search report and its relevance discussed therein. A copy of the foreign search report, together with an English language version thereof, is attached for the Examiner's information.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Arthur J. Steiner  
Registration No. 26,106

600 13<sup>th</sup> Street, N.W.  
Washington, DC 20005-3096  
Phone: 202.756.8000 AJS:aph  
Facsimile: 202.756.8087  
**Date: December 28, 2004**

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as our correspondence address.



SHEET 1 OF 1

<b>INFORMATION DISCLOSURE CITATION IN AN APPLICATION</b>			ATTY. DOCKET NO. <b>50212-581</b>	SERIAL NO. <b>10/804,174</b>			
<b>(PTO-1449)</b>			<b>APPLICANT</b> <b>Toshiaki OKUNO, et al.</b>				
			FILING DATE <b>March 19, 2004</b>	GROUP <b>2874</b>			
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER'S INITIALS	CITE NO.	Document Number Number-Kind Code <sub>2</sub> ( <i>if known</i> )	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear		
		US <b>5,960,146 A</b>	9-28-1999	Mori et al.			
		US <b>4,852,968 A</b>	8-1-1989	Reed			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER'S INITIALS	CITE NO.	Foreign Patent Document Country Code <sub>3</sub> -Number 4-Kind Codes ( <i>if known</i> )	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Figures Appear	Translation	
		EP 1 209 497 A	5-29-2002	Sumitomo Electric Industries		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>OTHER ART</b> (Including Author, Title, Date, Pertinent Pages, Etc.)							
EXAMINER'S INITIALS	CITE NO.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.					
		HIROSHI, J. et al., "Dispersion slope controlled HNL-DSF with high $\gamma$ of 25 W <sup>-1</sup> km <sup>-1</sup> and band conversion experiment using this fiber" Fitel Photonics laboratory, ECOC2002, Post-deadline session 1					
		OKUNO, T. et al., "Generation of Ultra-Broad-Band Supercontinuum by Dispersion-Flattened and Decreasing Fiber" IEEE Phototonics Technology Letters, Vol. 10, No. 1, January 1998					
		HANSEN, K.P. et al., "Fully Dispersion Controlled Triangular-Core Nonlinear Photonic Crystal Fiber" OFC2003, March 23-28, 2003, Postdeadline Papers					
		LEE, J.H. et al., "Four-Wave Mixing Based 10-Gb/s Tunable Wavelength Conversion Using a Holey Fiber With a High SBS Threshold" IEEE Phototonics Technology Letters, Vol. 15, No. 3, March 2003					
		INOUE, K. "Arrangement of fiber pieces for a wide wavelength conversion range by fiber four-wave mixing" August 15, 1994 / Vol. 19, No. 16 / Optics Letters					
		ONISHI, M. et al., "Highly Nonlinear Dispersion-Shifted Fibers and Their Application to Broadband Wavelength Converter" Optical Fiber Technology, 4, 204-214 (1998), Article No. OF980248					
		INOUE, K. "Tunable and Selective Wavelength Conversion Using Fiber Four-Wave Mixing with Two Pump Lights" IEEE Phototonics Technology Letters, Vol. 6, No. 12, December 1994					
		TANAKA, K. et al., "400 Gbit/s (20x20 Gbit/s) dense WDM solution-based RZ signal transmission using dispersion flattened fibre" Electronic Letters, November 12, 1998, Vol. 34, No.23					
		"Low-Loss Quadruple-Clad Single-Mode Lightguides with Dispersion Below 2 ps/km nm over the 1.28 $\mu$ m – 1.65 $\mu$ m Wavelength Range" Electronic Letters, November 25, 1992, Vol. 18, No.24					
		LIU Y. et al., "Design and Fabrication of Locally Dispersion-Flattened Large Effective Area Fibers" ECOC 98 Corning Incorporated, September 1998					
		NAKAZAWA M. et al., "TDM single channel 640Gbit/s transmission experiment over 60km using 400fs pulse train and walk-off free, dispersion flattened nonlinear optical loop mirror" Electronic Letters, April 30, 1998, Vol. 34, No.9					
		ONISHI, M. et al., "Highly Nonlinear Dispersion Shifted Fiber and its Application to Broadband Wavelength Converter" ECOC 97, September 22-25,1997, Conference Publication No. 448					
		WATANABE, S. et al., "Simultaneous Wavelength Conversion and Optical Phase Conjugation of 200 Gb/s (5x40 Gb/s) WDM Signal Using a Highly Nonlinear Fiber Four-wave Mixer" ECOC 97, September 22-25,1997, Conference Publication No. 448					
		Tsuzaki, T. et al., "Broadband Discrete Fiber Raman Amplifier with High Differential Gain Operating Over 1.65 $\mu$ m-band" © 2000 Optical Society of America					
		OKUNO T. et al., "Silica-Based Functional Fibers with Enhanced Nonlinearity and Their Applications" IEEE Journal of Selected Topics in Quantum Electronics Vol. 5, No. 5, September/October 1999					
		BATAGELJ B. et al., "Conversion Efficiency of Fiber Wavelength Converter Based on Degenerate FWM" Transparent Optical Networks, 2nd Internation Conference on Gdansk, Poland, June 5, 2000					
		HEADLY, C. et al., "Methods of Suppressing Stimulated Brillouin Scattering in Optical Fibers by Manipulation of the Fiber Properties", Technical Digest Symposium on Optical Fiber Measurements, October 1, 1996, pp 105-110					
EXAMINER			DATE CONSIDERED				

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.